HELP DOCUMENTATION

FastLane Help System

Generate PDF Files

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Generate PDF Files

Generate PDF Files Introduction

NSF converts your proposal and other documents that you create in FastLane into Portable Document Format (PDF) files. There are three reasons for this:

- PDF files can be read on different platforms (such as Windows, Macintosh, and Unix).
- The PDF format help ensure that the file appears as the author intends
- NSF can ensure that the PDF file meets FastLane formatting requirements.

Upload Documents Directly to FastLane in Many Formats

FastLane recommends that you upload your documents in their original format. See Acceptable Formats for FastLane for the many formats that FastLane now accepts for uploaded files and Upload a File for instructions on how to upload a document. Embed the fonts used in your document before uploading.

Create and Upload a PDF Document

It is still acceptable to create your own PDF files for uploading, if you wish, as long as the PDF documents meet NSF formatting requirements.

Proposals often contain images, graphics, equations, and various character sets (Greek letters, for example). To enable reviewers and NSF staff to read your file as you intend it to read, your PDF file must be complete. This means that it must contain embedded in it all the non-standard font characters that you used.
To create a PDF file that meets NSF formatting requirements, see the following:

- Software Requirements for Creating PDF Files
- Ensure Your PDF Files Meet NSF Formatting Requirements
- Important Don'ts

See Generate PDF Files to see how to create PDF files from various platforms.

If you use UNIX or LINUX, you may want to use TeX/LaTeX technology to format text, which doesn't always work with the Adobe technology. To account for these potential issues, NSF suggests that such users create and submit DVI files when working on a UNIX machine. See TeX and LaTeX Support Introduction.

Note: To ensure your PDF files meet NSF formatting requirements, please make sure that all security permission for your PDF files are set to No Security before you upload your PDF file to FastLane. Failure to do so causes problems with the viewing and printing of your proposal. FastLane is blocking PDF files that have security permissions enabled. See Important Don'ts.

Software Requirements for Creating PDF Files

The following software is acceptable for creating PDF files that meet NSF formatting requirements:

- Adobe Acrobat Professional or Standard Version 5 or higher
  Note: FastLane now supports Adobe Acrobat Distiller Version 7
- Ghostscript (Version 6.5 or higher)
- Tex/LaTex
- Microsoft Word
- WordPerfect

See Important Don'ts for information on software and settings that will not function.

Important Don'ts

Do Not Use These PDF Producers

These PDF producers may generate fine standalone documents, but create difficulties for embedding fonts and for file concatenation:

- Canvas/Deneba PDF Filter
- Dvipdf(m)
- FrameMaker
- Ghostscript versions before 6.5
- Hewlett-Packard Intelligent Scanners
- PhotoShop
- PStill

For more information, see Blocked PDF Producers.

Do Not Use Adobe Acrobat Encryption or Security Settings

Modern versions of Adobe Acrobat allow users to create security settings on PDF files. These settings negatively affect the ability of NSF Program Officers and reviewers to properly access and view your files.

To turn off Adobe Acrobat security settings, in the PDF document, select **File --> Document Properties**. The **Document Properties** box displays.
In the left sidebar menu, select **Security**.
In the **Security Method** box, select **No Security**.
Click **OK**.

Note: FastLane is a security and encrypted environment. NSF assumes responsibility for keeping your submitted documents secure and confidential.

Do Not Use Adobe Acrobat PDFWriter

PDFWriter does not produce PDF files acceptable for FastLane, except under very limited circumstances. PDFWriter can produce garbled and incomplete versions of your file. It is better to upload the file in one of the many formats that FastLane supports (see Acceptable Formats for FastLane).

If you want to create a PDF file, use Adobe Distiller (in the same package as PDFWriter) or Ghostscript.

For more information on PDFWriter, see
http://planetpdf.com/planetpdf/pdfs/issue02.pdf

For more information on Ghostscript, see http://www.cs.wisc.edu/~ghost/

Ensure Your PDF Files Meet NSF Formatting Requirements

Note: *Only* if you have Adobe Version 4, access FastLane Job Options (opens a new window). Then go to **File --> Save as** and save the document that displays as a file in your Adobe folder (usually found in Program Files). This will ensure your PDF document meets NSF requirements. For all other permissible PDF generators, adhere to the instructions below.

To ensure your PDF files meet NSF formatting requirements, you should take these measures:

- Select Edit and Print Adobe security permissions
- Embed all fonts
- Use Type 1 or TrueType fonts
- Subset fonts
- ☐Check resolution for images and figures

Select Edit and Print Adobe Security Permissions

See the **File → Document** security option in Adobe Acrobat and set the following two security permissions to **Allow**:

- **Edit** permission
- **Print** permission

The **Edit** permission must be set to **Allow** so NSF can concatenate your documents into one file.

Embed All Fonts

Always embed fonts into the PDF file. Otherwise, PDF viewers and printers may replace your fonts with substitutes and produce unwanted results. For example, a bracket in a mathematical equation might be replaced by a column of letters.

Use Type 1 or TrueType Fonts

The fonts are commonly available in most applications.

Subset Fonts

For all applications other than TeX or LaTeX, subset fonts at a threshold of 100%. Subsetting fonts forces the fonts you used to be properly called when individual PDF files are combined into one large PDF proposal file.

If you are using TeX or LaTeX, upload your .dvi file and figures.

Check Resolution for Figures and Images

Conversion programs to PDF have settings that may affect the resolution of your figures and images.

Generate a PDF

Generate a PDF Introduction

To generate a PDF file, use the instructions below for the appropriate software, version, and operating system (OS):

- Adobe Acrobat Professional or Standard Version 5 or higher
  - Windows
  - Mac
- Ghostscript
- TeX/LaTeX
- WordPerfect

Generate a PDF File in Windows

To generate a PDF, you must have installed Adobe Acrobat Standard or Professional Version 5 or higher.

First, embed the fonts in your word-processing document.

1. Open the word-processing file you want to convert to PDF.
2. Select **File → Print**. The **Print** box displays.
3. In the **Name** box, select Acrobat Distiller (for Version 5) or Adobe PDF (for Version 6 or higher).
4. Click **OK**. The document displays in a new window as a PDF file.
5. Select **File → Save as PDF**. The **Save as** box displays.
6. Give the file a name and select the directory you want to store it in.
7. Click **Save**. The PDF file is now ready for uploading to FastLane. See Upload a File.

Generate a PDF File for Macintosh

To embed the fonts in your document, FastLane recommends that you first turn a Word or other word-processing document into a PostScript file and then convert the PostScript file to a PDF for uploading to FastLane.

1. Open your word-processing document.
2. Select **File → Print**.
3. In the dialogue box, change **Copies and Pages** to **Output Options**.
4. Click **Save as file**. The **Save As** box displays.
5. In the dropdown menu, select **PostScript**.
6. Click **Save**.
7. Close out the word-processing file.
8. Double-click the PostScript file icon or filename in the folder that you saved it to. A box displays stating the PostScript file is being converted to PDF. When the conversion is finished, the converted document displays as a **Preview**.
9. In the Preview, select **File → Export**.
10. In the **Format** drop-down box, select **PDF**.
11. Click **Save**.

Your original document is now in PDF with fonts embedded.

Generate PDF Files With Ghostscript

Instructions and the current version of Ghostscript may be found at the GhostScript Home Page.

Go to the Ghostscript website for more information on Postscript to PDF.

Suggestions

Remember when using Ghostscript to:

- Use Type 1 fonts.
- Embed the fonts.
- Set the output resolution at a sufficient level for your included images and graphics.
- Since ps2pdf will convert your PostScript file to PDF within Ghostscript, use the following settings:
  - dMaxSubsetPct=100
  - dCompatibilityLevel=1.2
  - dSubsetFonts=true
  - dEmbedAllFonts=true

Generate PDF Files With WordPerfect

NSF highly recommends that the WordPerfect file be uploaded directly to FastLane.

WordPerfect 9 or higher, part of WordPerfect Office 2000, has a Publish to PDF function that will bypass the need for Adobe Acrobat Distiller or GhostScript. This function will embed WordPerfect fonts.

Generate DVI Files

TeX and LaTeX Support Introduction

FastLane now provides the option of sending NSF a single combined file consisting of a DeVice Independent (DVI) file, created from TeX/LaTeX source, and any associated PostScript figures. FastLane will combine these files, display the consolidated file back to you for confirmation, and store the resulting file for use at NSF.

To proceed with creating these combined files, see

- Acceptable TeX and LaTeX Formats
- Generate a DVI File
- Submit DVI Files and Figures
- Create a Single Uncompressed Archive File
- Create a Single Compressed Archive File

Also see Other Submission Options for files from a TeX and LaTeX source.

Acceptable TeX/LaTeX File Formats

FastLane supports TeX/LaTeX file formats with the following extensions:

- .dvi DVI file only -- use when there are no PostScript figures
- .dvz DVI file only -- use when there are no PostScript figures and compressed with gzip, not PKZip.
- .dar DVI file and PostScript figures combined into a single TAR file – uploaded uncompressed
- .dgz DVI file and PostScript figures combined into a single TAR file -- compressed with gzip, not PKZip.

Create a PS File on UNIX

To create a PostScript file in UNIX, you must print your document to a PostScript file. In UNIX, a PostScript file is produced by the application rather than by a printer driver. See the application's user guide for documentation on creating a PostScript file. Also, see the instructions on creating PS files with TeX/LaTeX.

Submit DVI Files and Figures

FastLane allows the direct upload of .dvi files. However, the file should have the .dvi filename extension to allow appropriate handling.

TeX/LaTeX users should convert their source (.tex) files to DVI (.dvi) files. If the document is self-contained (does not have associated PostScript figures), for example, if it is a proposal summary, you can upload the DVI file directly to FastLane.

If you have Encapsulated PostScript figures defined in your .tex file, common for project descriptions, you will need to include them in the file you upload. Follow these instructions in creating your uploadable file:

1. Create your .dvi file from your TeX/LaTeX file. Ensure that the references to figures in your TeX/LaTeX file contain the file name of the figure but not the directory path (e.g., "figure1.ps" not "/home/yourname/project/figure1.ps").
2. Combine all the files (DVI and figures) into a single TAR file. The resulting file should use .dar as the filename extension to allow proper handling after upload. To reduce the size of the upload, you can compress this file using gzip. In this case, use .dgz as the filename extension.

Generate a DVI File

TeX files and archives may be transferred for conversion. However, even though the above file extensions define the conversion process, this is not recommended. FastLane uses the MikTeX (1.20e) compiler, and your TeX/LaTeX compiler, macros, style files, etc., may be different. You should upload the DVI file instead.

To generate a dvi file from a tex file, do the following:

- For a plain TeX file use the command:
  % tex myfile.tex

- For a TeX file using LaTeX use the command:
  % latex myfile

Note: The example above will create the myfile.dvi file from the myfile.tex file.

Create a Single Uncompressed Archive File

If your files are not very large, it is not necessary to compress the resulting file. You can create a single compressed archive file by combining your .dvi and .ps files using the "tar" executable as follows:

1. Create your .dvi file as described in the "Generate DVI File" section of this document.
2. Combine the .dvi file and your figures into an uncompressed archive file using the "tar" executable with the following command:

   % tar -cvf outputfilename.dar file1.dvi file2.ps ...

   Note:
   - If you want the command to show you less output, remove the v from the command arguments. The last command argument must be -f and it must be followed immediately (after a space) by the output filename.
   - In the above example, outputfilename.dar is the name given to the archive file.
   - You can list as many space-separated filenames as necessary.

3. Transfer the outputfilename.dar file to FastLane.

Create a Single Compressed Archive File

If your files are very large, you can create a single compressed archive file by combining your .dvi and .ps files using the "tar" executable. These command lines should work for almost any UNIX system with the "tar" executable and "gzip" installed.

1. Create your .dvi file as described in "Generate DVI File" section of this document.
2. Combine the .dvi file and your figures into a compressed archive file using the "tar" executable with the following command:

   % tar -cvzf outputfilename.dgz file1.dvi file2.ps ...

   Note:
   - If you want the command to show you less output, remove the v from the command arguments. The last command argument must be -f and it must be followed immediately (after a space) by the output filename.
   - In the above example, outputfilename.dgz is the name given to the archive file.
   - You can list as many space-separated filenames as necessary.
   - Older versions of tar that do not support the "z" argument in gzip output (such as Solaris tar) should be called with the following command:

     % tar -cvf - file1 file2 ...| gzip > outputfilename.dgz

3. Transfer the outputfilename.dgz file to FastLane.

Other Submission Options

Other Submission Options

Two other submission options are available to create PDF files from the Tex and LaTeX source:

- Create PostScript files with TeX/LaTex
- Create a PDF from DVI files

Create PostScript Files With TeX/LaTeX

1. Create your .dvi file.

   Note: Make sure that you have a recent version of TeX (we recommend teTeX or MikTeX) and that Type 1 fonts are installed.

2. Type the UNIX command on the command line. The example below shows the UNIX command that will generate the PostScript file, mydocument.ps:
   % dvips -Ppdf -t letter mydocument.dvi

   Note:
   - The -Ppdf option tells "dvips" to generate the PS with options for converting to PDF. Otherwise, you will likely get bad fonts in your PDF.
   - The -t attribute says to explicitly use letter size paper as required. Then transfer the mydocument.ps file to FastLane or combine it with other files into a PDF document.

Submit PostScript Files

You may submit your files in PostScript format. However, DVI-to-PostScript converters default to bitmapped fonts that may appear fine on 300 dpi printers but not on 72 dpi monitors.

Also, many applications that produce Postscript output do so imperfectly. Often, that is not a problem when printing a single file. However, PostScript files created with older versions of dvipsk, groff, or troff can cause problems with file concatenation when FastLane creates your entire proposal as a single PDF document.

Problems may not be visible unless you are viewing the entire proposal.

So, it is best to either submit your dvi file or complete the PDF generation process.

Create a PDF from DVI Files

The creation of a PDF file from TeX/LaTeX often involves the following steps:

1. Create a DVI file.
2. Convert the DVI file into a PostScript(PS) file using, for example, the programs dvips or dvipsk.
3. Convert the PS file to PDF can follow using, for example, Adobe Distiller or Ghostscript. Other options also now exist, but strictly compliant PDF files do not always result.
4. Check your PDF for the following:
   - It does not contain Type 3 fonts.
   - It meets PDF specifications.
   - All fonts are embedded.
   - It is easy for reviewers to read.

Note: There are two common problems with this approach:

- DVI-to-PS converters use, by default, bitmapped (Type 3) fonts. These fonts are fine for most PostScript printers, but the resulting PDF files are difficult to read when viewed on a monitor. Users who have access to PostScript (Type 1) fonts and understand how to get them into their PostScript files may still be using an older version of Ghostscript. Before Ghostscript 6, fonts could not be embedded. Unless users are sophisticated in their
- Understanding of fonts and are certain that their PDF files strictly comply with standards, FastLane recommends that TeX/LaTeX users stop at the first step in the process and submit their DVI files and associated PostScript figures.

Troubleshooting

Troubleshooting and Configuration
Below is a list of some problems, and solutions, that you may encounter when attempting to submit TeX/LaTeX files:

- Bad Archive
- Bad Postscript
- Bad TeX
- File Extensions
- Multiple .dvi and/or .tex files in an archive
- tar'ing a directory not a set of files

Bad Archive

Did you use "***tar***" and "***gzip***"?

- "***gzip***" is the only compression method supported by FastLane at this time.
- "***pkzip***" is not the same thing as gzip.
- Unix compress (Z-compress, the **.**Z extension) is not supported.

Bad Postscript

If your figures use Postscript that cannot be distilled to a PDF file, the conversion will fail. Many applications that produce Postscript output do so imperfectly. Try converting the output to some other format (preferably a raster/bitmap format) and then converting it back to Postscript or Encapsulated PostScript. This can be done with an image manipulation program, such as the Gimp.

Bad TeX

If you uploaded a TeX file or archive, and conversion failed, try TeX'ing the document yourself and uploading the .dvi file.

If you get errors while attempting to create the .dvi file, then chances are that our software will also fail.

If no errors are encountered while creating the .dvi file, it may be that you are using a macro which we do not support. Upload the .dvi file.

File Extensions

FastLane decides now to handle your files based on the file extension and does not recognize arbitrary extensions. You must use the file extensions listed below. While the extensions listed in the Known Bad Extensions table are not arbitrary, the are not supported by FastLane.
You should not, for example, name a tar'ed, gzip'ed DVI archive `mydocument.tar.gz`. Instead it should be named `mydocument.dgz`.

Acceptable Formats

EXTENSION	File Type

.dvi	DVI file only · No PostScript figures
.dvz	DVI file only · No PostScript figures · Compressed with gzip (**not** pkzip!)
.dar	DVI file and PostScript figures combined into a single TAR file · Uncompressed
.dgz	DVI file and PostScript figures combined into a single TAR file · Compressed with gzip (**not** pkzip!)

Known Bad Extensions

EXTENSION	File Type
.gz	"***gzip***" file · Please tar the file up before gziping it. · "***gzip***" does not preserve the filename (and more importantly to our software, the extension). Therefore after we uncompress it, we have no easy way of identifying the file type.
.z	UNIX Compress File · FastLane does not support this format. · Use "***gzip***" instead. ("***gzip***" also gives better compression).

Multiple .dvi and/or .tex files in an archive

The conversion process is automated. If you send multiple TeX and/or DVI files in the same tar file, the first one found will be processed and returned. This may or may not be what you want.

tar'ing a directory not a set of files

You have to tar the files, not a directory containing the files.

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